What is claimed is:

1. A method for detecting multiple test materials in a test sample comprises the steps of:

(a) adding a test sample into a test column, said test column having at least a test snare having thereon at least two target capture materials, a first target capture material being specific to a first test material in said test sample and a second target capture material being specific to a second test material in said test sample; and wherein said first test material binds to said first target capture material to form a bound first test material and said second test material binds to said second target capture material to form a bound second test material;

(b) washing said test column to remove unbound test materials;

(c) adding a first probe to attach specifically to said bound first test material, said first probe having thereon a first chemical label;

(d) washing said test column to remove unbound first probe;

(e) detecting signals generated by said first chemical label on said test snare for determining the presence of said first test material;

(f) adding a second probe to attach specifically to said bound second test material, said second probe having thereon a second chemical label;

(g) washing said test column to remove unbound second probe; and

(h) detecting signals generated by said second chemical label on said test snare for determining the presence of said second test material.

2. The method of Claim 1 further comprising the steps of adding a first triggering solution to trigger said first chemical label prior to said detecting signals in step (e); washing said column to remove said first triggering solution prior to adding said second probe in step (f); and adding a second triggering solution to trigger said second chemical label prior to said detecting signals in step (h).

3. The method of Claim 2, wherein said chemical labels are chemiluminescence labels.

4. The method of Claim 3, wherein said first chemical label and said second chemical label are the same, and said first and second triggering solutions are the same.

5. The method of Claim 4, wherein said chemical labels are an acridinium dye.

6. The method of Claim 1, wherein said test material comprises DNA, RNA and PNA.

7. The method of Claim 1, wherein said test snare has thereon a third target capture material being specific to a third test material in said test sample; wherein said third test material binds to said third target capture material to form a bound third test material; and wherein said method further comprises steps of:

(i) adding a third probe to attach specifically to said bound third test material, said third probe having thereon a third chemical label;

(j) washing said test column to remove unbound third probe; and

(k) detecting signals generated by said third chemical label on said test snare for determining the presence of said third test material.

8. The method of Claim 7 further comprises a step of adding a third triggering solution to trigger said third chemical label before said detecting signals in step (k).

9. The method of Claim 8, wherein said first, second and third chemical labels are the same, and said first, second and third triggering solutions are the same.

10. The method of Claim 1, wherein step (a) further comprises adding at least two positive controls into said test column, said test column further comprising a

positive control snare which is separate spatially from said test snare by an intervening air space, said positive control snare having thereon a positive control capture material; wherein said first positive control and said second positive control bind with said positive control capture material to form a bound first positive control and a bound second positive control; wherein in step (c) said first probe further attaches to said bound first positive control and in step (f) said second probe further attaches to said bound second positive control; wherein step (e) further comprises detecting signals generated by said first chemical label on said positive control snare for determining the presence of said first positive control; and step (h) further comprises detecting signals generated by said second chemical label on said positive control snare for determining the presence of said second positive control.

11. The method of Claim 10, wherein said test snare has thereon a third target capture material being specific to a third test material in said test sample, and said third target capture material binds with said third test material to form a bound third test material; and wherein step (a) further comprises adding a third positive control into said test column, said third positive control binds with said positive control capture material to form a bound third positive control; and

wherein said method further comprises steps of:

(i) adding a third probe to attach specifically to said bound third test material and bound third positive control, said third probe having thereon a third chemical label;

(j) washing said test column to remove unbound third probe; and

(k) detecting signals generated by said third chemical label on said test snare and positive control snare for determining the presence of said third test material and said third positive control.

12. The method of Claim 1, wherein step (a) further comprises adding a negative control into said test column, said test column further comprising a negative control snare which is separate spatially from other snares by an intervening air space, said negative control snare having thereon a negative control capture material

which is specific to said negative control; and wherein said negative control capture material binds with said negative control to form a bound negative control; and wherein step (e) and (h) further comprise detecting signals generated on said negative control snare.

13. The method of Claim 1 further comprising a detection of background signals of said test sample on a blank snare of said test column; said blank snare being separate spatially from other snares by an intervening air space and having thereon no capture materials.

14. A method for detecting multiple target nucleic acid fragments in a test sample comprises the steps of:

(a) adding a test sample containing single strand target nucleic acid fragments into a test column, said column having at least a test snare having thereon at least two single strand target capture DNA sequences, a first target capture DNA sequence being specific to a first target nucleic acid fragment in said test sample and a second target capture DNA sequence being specific to a second target nucleic acid fragment in said test sample; and wherein said first target nucleic acid fragment binds to said first target capture DNA sequence by forming a double strand target nucleic acid segment at a capture binding site of said first target nucleic acid fragment and said second target nucleic acid fragment binds to said second target capture DNA sequence by forming a double strand target nucleic acid segment at a capture binding site of said second target nucleic acid fragment;

(b) washing said test column to remove unbound nucleic acid fragments;

(c) adding a first single strand DNA probe to attach specifically to a probe binding site of said first target nucleic acid fragment, said first probe having thereon a first chemical label;

(d) washing said test column to remove unbound first probe;

(e) adding a first triggering solution to trigger said first chemical label;

(f) detecting signals generated by said first chemical label on said test snare for determining the presence of said first target nucleic acid fragment;

(g) washing said test column to remove said first triggering solution;

(h) adding a second single strand DNA probe to attach specifically to a probe binding site of said second target nucleic acid fragment, said second probe having thereon a second chemical label;

(i) washing said test column to remove unbound second probe;

(j) adding a second triggering solution to trigger said second chemical label; and

(k) detecting signals generated by said second chemical label on said test snare for determining the presence of said second target nucleic acid fragment.

15. The method of Claim 14, wherein said nucleic acid fragments comprise DNA, RNA, and PNA.

16. The method of Claim 14, wherein said chemical labels chemiluminescence labels.

17. The method of Claim 16, wherein said chemical labels are an acridinium dye.

18. The method of Claim 14, wherein said test snare has thereon a third target capture DNA sequence being specific to a third target nucleic acid fragment in said test sample; wherein said third target nucleic acid fragment binds to said third target capture DNA sequence by forming a double strand target nucleic acid segment at a capture binding site of said third target nucleic acid fragment; and wherein said method further comprises steps of:

(l) washing said test column to remove said second triggering solution;

(m) adding a third single strand DNA probe to attach specifically to a probe binding site of said third target nucleic acid fragment, said third probe having thereon a third chemical label;

(n) washing said test column to remove unbound third probe;

(o) adding a third triggering solution to trigger said third chemical label; and

(p) detecting signals generated by said third chemical label on said test snare for determining the presence of said third target DNA sequence.

19. The method of Claim 14, wherein step (a) further comprises adding least two positive control DNA sequences into said test column, said test column further comprising a positive control snare which is separate spatially from said test snare by an intervening air space; and said positive control snare having thereon a positive control capture DNA sequence; wherein a first positive control DNA sequence and a second positive control DNA sequence bind to said positive control capture DNA sequence by forming a double strand DNA segment at a capture binding site of said first and said second positive control DNA sequences; and wherein in step (c) said first single strand DNA probe further attaches to a probe binding site of said first positive control DNA sequence, and in step (h) said second single strand DNA probe further attaches to a probe binding site of said second positive control DNA sequence; and wherein step (f) further comprises detecting signals generated by said first chemical label on said positive control snare for determining the presence of said first positive control DNA sequence; and step (k) further comprises detecting signals generated by said second chemical label on said positive control snare for determining the presence of said second positive control DNA sequence.

20. The method of Claim 19, wherein said probe binding site of said first positive control DNA sequence is same to said probe binding site of said first target nucleic acid fragment, and said probe binding site of said second positive control DNA sequence is same to said probe binding site of said second target nucleic acid fragment.

21. The method of Claim 19, wherein said positive control snare having thereon two positive control capture DNA sequences, a first positive control capture DNA sequence being specific to first positive control DNA sequence and a second positive control capture DNA sequence being specific to second positive control DNA

sequence; wherein said first positive control DNA sequence binds to said first positive control capture DNA sequence at a capture binding site of said first positive control DNA sequence and said second positive control DNA sequence binds to said second positive control capture DNA sequence at a capture binding site of said second positive control DNA sequence.

22. The method of Claim 19, wherein said test snare has thereon a third target capture DNA sequence being specific to a third target nucleic acid fragment in said test sample, and said third target nucleic acid fragment binds to said third target capture DNA sequence by forming a double strand target nucleic acid segment at a capture binding site of said third target nucleic acid fragment; and wherein step (a) further comprises adding a third positive control DNA sequence into said test column, and said third positive control DNA sequence binds to said positive control capture DNA sequence at a capture binding site of said third positive control DNA sequence;

and wherein said method further comprises steps of:

(l) washing said test column to remove said second triggering solution;

(m) adding a third single strand DNA probe to attach specifically to a probe binding site of said third target nucleic acid fragment and to a probe binding site of said third positive control DNA sequence, said third probe having thereon a third chemical label;

(n) washing said test column to remove unbound third probe;

(o) adding a third triggering solution to trigger said third chemical label; and

(p) detecting signals generated by said third chemical label on said test snare and said positive control snare for determining the presence of said third target DNA sequence and said third positive control DNA sequence.

23. The method of Claim 14, wherein step (a) further comprises adding a negative control DNA sequence into said test column, said test column further comprising a negative control snare which is separate spatially from other snares by an intervening air space, and said negative control snare having thereon a negative control capture DNA sequence which is specific to said negative control DNA

sequence; wherein said negative control DNA sequence binds to said negative control capture DNA sequence by forming a double strand negative control DNA segment at a capture binding site of said negative control DNA sequence; and wherein step (f) and (k) further comprise detecting signals generated on said negative control snare.

24. A method for detecting multiple target nucleic acid fragments in a test sample comprises the steps of:

(a) adding two positive control DNA sequences and a test sample containing single strand target nucleic acid fragments into a test column, said test column having at least two snares which are separate spatially one from another by an intervening air space; at least one of said snares being a test snare, one of said snares being a positive control snare; said test snare having thereon at least two target capture DNA sequences, a first target capture DNA sequence being specific to a first target nucleic acid fragment in said test sample and a second target capture DNA sequence being specific to a second target nucleic acid fragment in said test sample; said positive control snare having thereon a positive control capture DNA sequence; and wherein said first target nucleic acid fragment binds to said first target capture DNA sequence by forming a double strand target nucleic acid segment at a capture binding site of said first target nucleic acid fragment, and said second target nucleic acid fragment binds to said second target capture DNA sequence by forming a second double strand target nucleic acid segment at a capture binding site of said second target nucleic acid fragment; said first positive control DNA sequence and said second positive control DNA sequence bind to said positive control capture DNA sequence at a capture binding site of said first and said second positive control DNA sequences;

(b) washing said test column to remove unbound nucleic acid fragments and unbound positive control DNA sequences;

(c) adding a first single strand DNA probe to attach specifically to a probe binding site of said first target nucleic acid fragment and a probe binding site of said first positive control DNA sequence, said first probe having thereon a chemical label;

(d) washing said test column to remove unbound first probe;

(e) adding a triggering solution to trigger said chemical label;

(f) detecting signals generated by said chemical label on said test snare and said control snare for determining the presence of said first target nucleic acid fragment and said first positive control DNA sequence;

(g) washing said test column to remove said triggering solution;

(h) adding a second single strand DNA probe to attach specifically to a probe binding site of said second target nucleic acid fragment and a probe binding site of said second positive control DNA sequence, said second probe having thereon said chemical label;

(i) washing said test column to remove unbound second probe;

(j) adding said triggering solution to trigger said chemical label; and

(k) detecting signals generated by said chemical label on said test snare and said control snare for determining the presence of said second target nucleic acid fragment and said second positive control DNA sequence.

25. The method of Claim 24, wherein said nucleic acid fragments comprise DNA, RNA, and PNA.

26. A test column for detection of a test material in a test sample, wherein said column has at least two snares, and at least one of said snares is a test snare having thereon a capture material for detecting the presence of said test material; said snares being separate spatially one from another by an intervening air space so that said snares are not in contact with one another.

27. The test column of Claim 26, wherein said test snare has thereon multiple capture materials for detection of multiple test materials in said test sample, each of capture materials being specific to one of said test materials.

28. The test column of Claim 26, wherein said test column comprises at least two chambers, each chamber having a snare; and wherein at least one of said

snares is a test snare having thereon a capture material for detecting said test material; said snares being separate spatially one from another by an intervening air space so that said snares are not in contact with one another.

29. The test column of Claim 28, wherein said test snare has thereon multiple capture materials for detection of multiple test materials in said test sample, each of capture materials being specific to one of said test materials.